

Nov. 2, 1937.

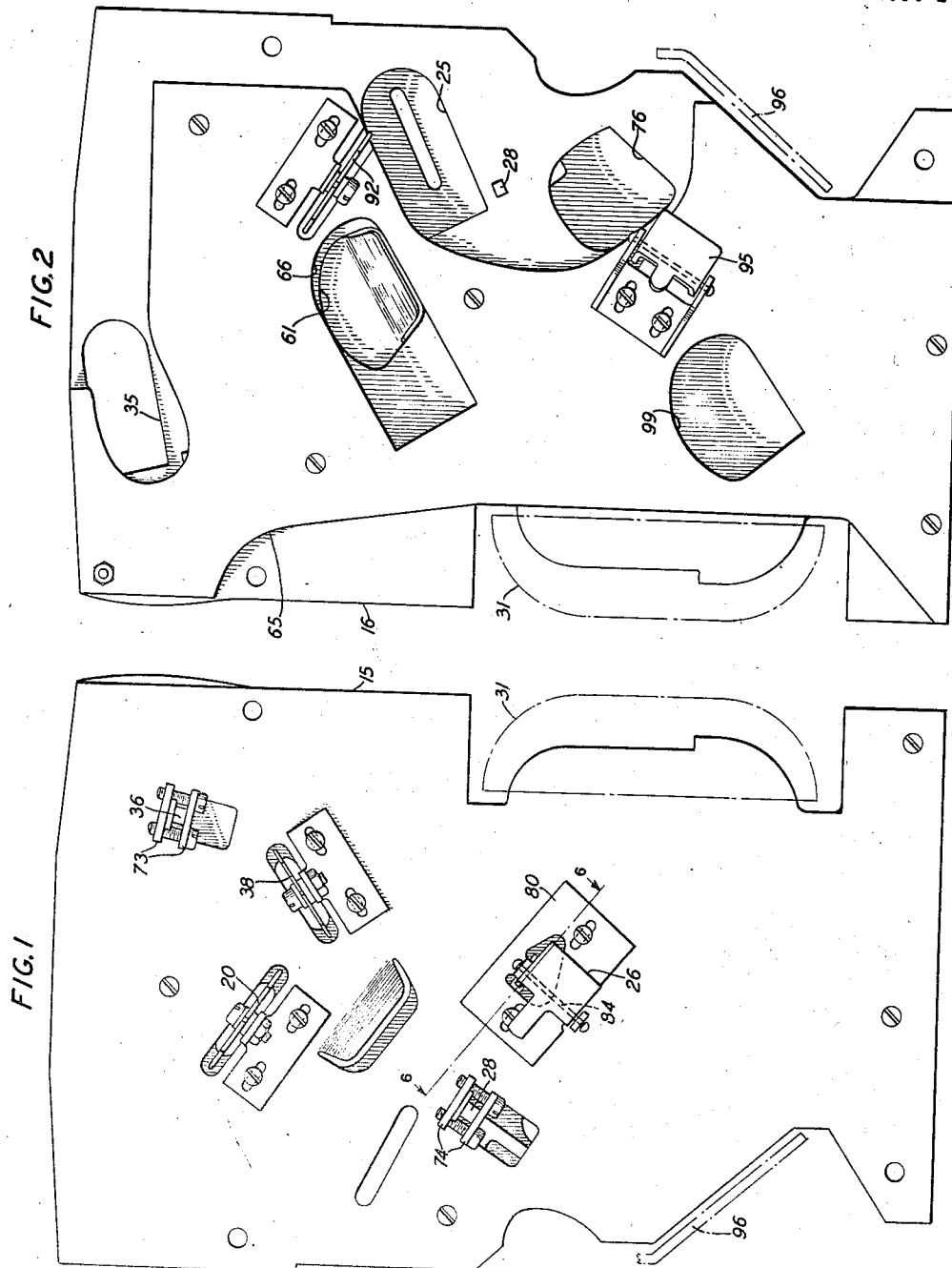
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2,097,498

COIN CHUTE FOR COIN COLLECTORS

Original Filed June 16, 1936

3 Sheets-Sheet 1



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FIG. 4

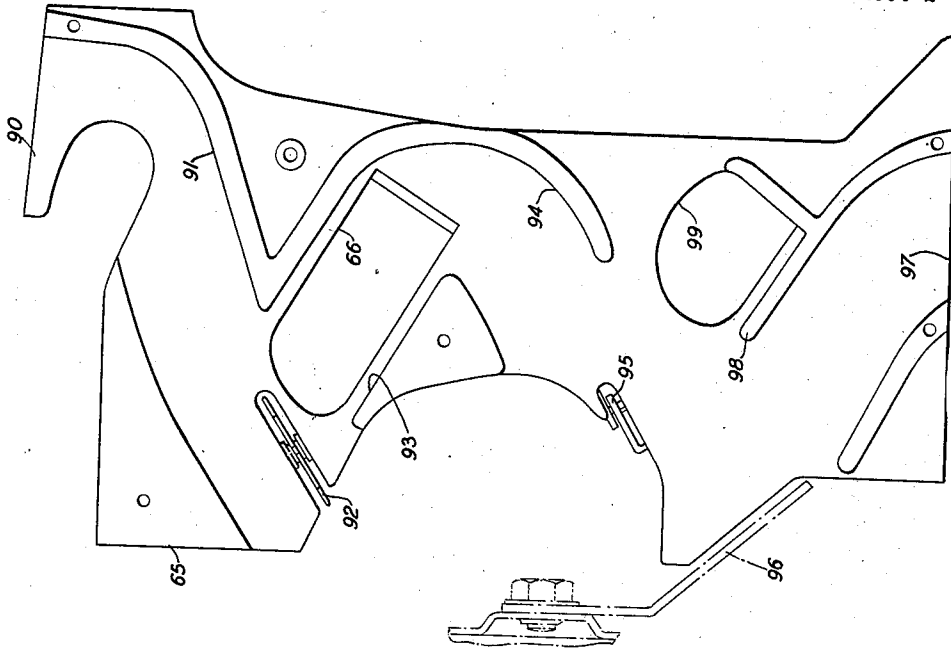
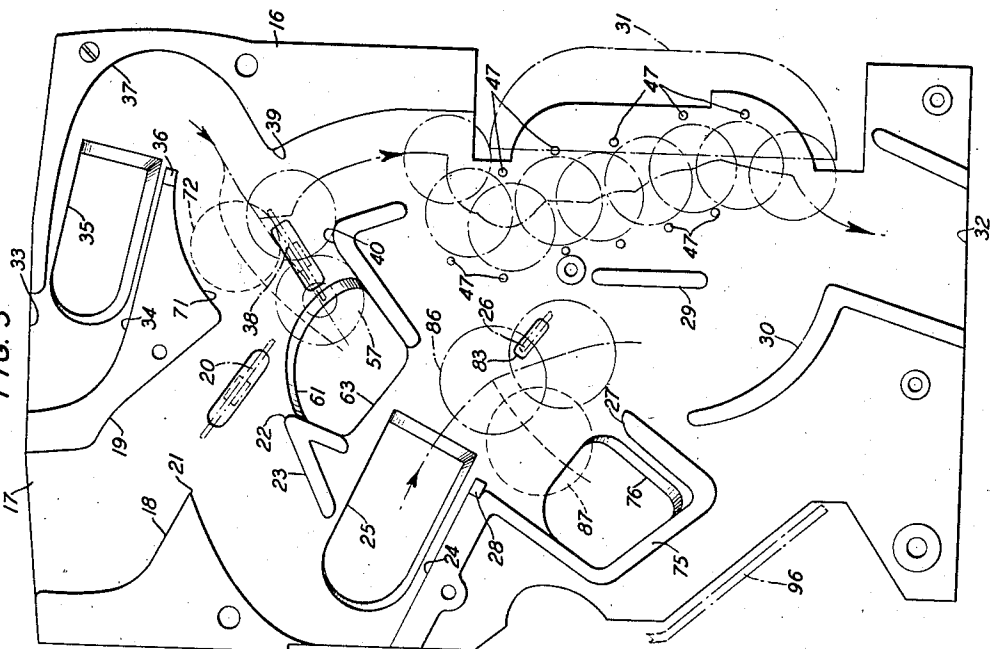


FIG. 3



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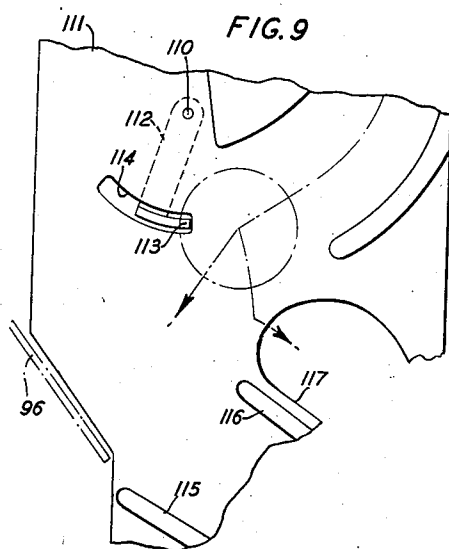
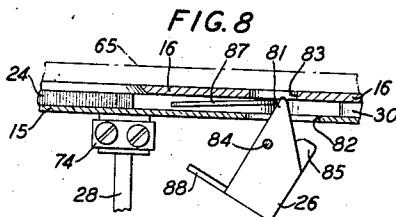
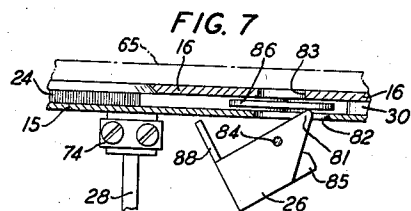
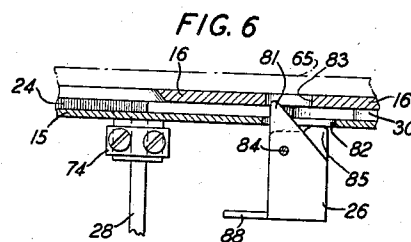
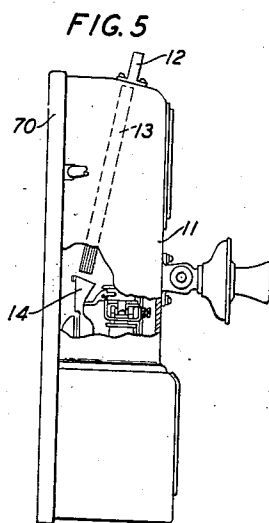
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COIN CHUTE FOR COIN COLLECTORS

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COIN CHUTE FOR COIN COLLECTORS

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Original application June 16, 1936, Serial No. 85,448. Divided and this application October 10, 1936, Serial No. 104,972

4 Claims. (Cl. 194-103)

This invention relates to coin chutes, particularly to those intended for use in coin operated apparatus such as telephone coin collectors.

An object of the invention is to prevent the use of non-standard coins or slugs for fraudulently obtaining goods or services from coin controlled devices.

In accordance with the primary object of this invention the acceptance of underweight slugs is prevented by providing a pivoted member having an arm which projects across the coin channel for contacting each deposited coin or slug. The bottom wall of the channel immediately preceding and below the pivoted arm has a gap so arranged that the momentum of a genuine coin is sufficient to permit the coin to leap the gap and continue on down the coin passage in spite of the loss incurred in knocking the pivoted arm out of the coin channel. A light-weight slug, however, in striking the pivoted arm will lose so much momentum that it will be unable to leap the gap in the bottom of the runway and hence is rejected through this opening.

This application is a division of my application Serial No. 85,448, filed June 16, 1936 on Coin chutes for coin collectors.

Referring to the drawings:

Fig. 1 is a rear view of the coin chute assembly of this invention;

Fig. 2 is a front view of the coin chute assembly;

Fig. 3 is a rear view of the center plate of the coin chute;

Fig. 4 is rear view of the front plate of the coin chute;

Fig. 5 illustrates the general manner of mounting a coin chute in a telephone coin collector;

Figs. 6, 7 and 8 are sectional views of the underweight slug rejector taken along the line 6-6 of Fig. 1; and

Fig. 9 illustrates an alternative type of swinging weight for securing the rejection of lightweight coins or slugs.

The coin collector coin chute illustrated in the attached drawings is, in general, of the conventional type in that it comprises front, center and rear plates suitably fastened together with a quarter runway between the front and center plates, and nickel and dime runways between the rear and center plates conforming in general construction to the type of coin chute disclosed in the O. F. Forsberg United States Patent 1,043,219, issued November 5, 1912. The manner in which the coin chute is mounted in a laterally inclined position within a telephone coin

collector 11 is shown in Fig. 5. The coin gauge 12 on top of the collector 11 has separate openings for receiving nickels, dimes and quarters and individual runways for these coins are provided in the coin chute 13 in order that the coins may be tested in certain particulars before dropping into a coin hopper 14.

Fig. 1 shows the rear view of the coin chute assembly and Fig. 2 shows the front view. The rear cover plate 15 of Fig. 1 has been removed in Fig. 3 to show the nickel and dime runways formed in the rear side of the center plate 16. Referring more particularly to Fig. 3 the coin entrance for nickels is at the point 17 whereupon the genuine coin follows a longitudinally inclined passage between walls 18 and 19 until the coin strikes an arm of a washer rejector 20 which prevents the coin from continuing further in the same direction and causes the coin to drop through an opening in the bottom wall between the points 21 and 22 whereupon it is guided in the reverse direction by bottom wall 23. After reaching the lower end of bottom wall 23 the coin drops onto the bottom wall 24 and passes alongside the under-diameter reject opening 25 of the usual type. The coin after rolling off the lower end of wall 24 strikes a pivoted arm 26 which normally projects into the runway for deflecting lightweight coins into a discharge opening located between projection 27 and the pole 28 of a magnet forming the termination of wall 24. However, a genuine coin has sufficient momentum to knock arm 26 outside the runway and continue to the right of projection 27 down a passage between walls 29 and 30 to strike the lower edge of gong 31 and then down through outlet opening 32 into the coin hopper 14 of Fig. 5.

The entrance for a dime is at the point 33 and the deposited dime rolls along bottom wall 34 past a suitable under-diameter reject opening 35. The lower end of wall 34 comprises a pole 36 of a straight bar magnet for deflecting magnetic coins. The direction of travel of the dime is reversed by curved wall 37 and the dime then encounters an arm of a washer rejector 38 which stops the dime from continuing on in the same direction, and allows the coin to drop through an opening in the bottom wall of the runway between the points 39 and 40 whereupon the coin strikes the upper edge of the bell 31. After striking the bell the dime continues down a channel between two rows of pins 47. Adjacent pins in each row are spaced apart a distance substantially less than the coin diameter to prevent a

coin from leaving the channel. The two rows of pins are spaced relatively close together to prevent a coin from dropping freely down the channel between the rows and the pins in the two rows are staggered. Since the channel defined by pins positioned in this staggered manner is tortuous it follows that the coin bounces back and forth in a zigzag course between the pins until it strikes the lower edge of the bell and drops out through the exit opening 32 into the coin hopper 14 of Fig. 5. This irregular course of the dime considerably increases the time for the dime to travel from the upper edge to the lower edge of bell 31, and, therefore, insures that the two successive strikings of the bell will be correctly heard by the remote operator.

The washer rejector 20 for the nickel runway and the washer rejector 38 for the dime runway are of the star wheel type and are described and claimed in my above-mentioned patent application Serial No. 85,448. When a washer is deposited in the nickel runway, the washer will freely pass through the rejector 20 and be discharged from the chute through opening 61. A washer such as washer 57 when deposited in the dime runway will freely pass through the rejector 38 and be discharged from the chute through opening 61.

It will be noted that the lower end of bottom wall 34 in the first inclined portion of the dime runway terminates in one pole of a straight bar magnet 36 to secure rejection of magnetic slugs that are not rejected by under-diameter reject opening 35. As shown in Fig. 1, the bar magnet 36 projects outwardly substantially perpendicular to the plane of plate 15 at least for a substantial distance although the remainder of the bar magnet may be bent in any suitable manner to avoid any apparatus on the adjacent coin collector base 70 of Fig. 5. The magnet may be held in any suitable manner as by a clamp 73 supported by upturned lugs formed from cover 15. The strength of magnet 36 should be such that a magnetic slug will pivot around the magnet against upper wall 71 and pass above the arms of star wheel 38 as shown by magnetic slug 72 and be ejected through opening 61 in the same manner as the washers.

The lower end of bottom wall 24 in the nickel runway terminates in a pole of a straight bar magnet 28 which for a substantial portion of its length projects away from the chute in a direction substantially perpendicular to cover 15 and is held by a suitable clamp 74 mounted on the cover 15. It will be apparent that magnetic slugs will be diverted by magnet 28 and caused to fall between magnet 28 and projection 27, strike the retaining wall 75 and fall out of the chute through opening 76.

The nickel runway is also provided with means for causing the rejection of lightweight slugs even though they are of the same diameter and thickness as a legitimate coin, as will be explained in connection with the sectional views shown in Figs. 6, 7 and 8. Mounted on the rear cover 15 of the chute is an adjustable mounting plate 80 which supports a pivoted lightweight slug rejecting member 26 having an arm 81 projecting through a narrow slot 82 in cover 15 across the runway and projecting slightly into a narrow slot 83 in the center section 16. As shown in Fig. 1 this swinging member 26 is pivoted for movement of its projecting arm 81 in a direction coinciding with the direction a legitimate coin takes in passing from bottom wall 24

across the gap 27, 28 and down between walls 29, 30; that is, the pivoting axis of member 26 is parallel to the surface of cover 15 and substantially at right angles to the path of coin travel at the point where the coin makes contact with finger 81. Most of the weight of member 26 is on the side of its pivoting axis 84 away from the coin chute, and member 26, due to gravity, normally takes the position shown in Fig. 6 with a projection 85 resting against the cover plate 15 below slot 82. This position maintains finger 81 directed straight across the runway, tending to block the passage of any coin which does not possess sufficient momentum to knock finger 81 clockwise out of the runway. Legitimate nickel coins after leaving bottom wall 23 and reversing their direction along bottom wall 24 leave the end 28 of the bottom wall with a substantially constant velocity and the effective weight of member 26 is such that a legitimate coin such as coin 86 of Fig. 7 will have sufficient momentum to knock finger 81 out of the runway and continue on past finger 81 to the right of projection 27, Fig. 3, and on down between walls 29, 30. The maximum clockwise rotation of finger 81 is reached when lug 88 strikes cover 15.

A lightweight slug traversing the nickel runway such as slug 87, Fig. 8, will not possess the necessary momentum to knock finger 81 out of the coin passage and will be sufficiently retarded that it will not be able to pass to the right of projection 27 but will strike to the left of tip 27 and be rejected through opening 76 in the same manner as magnetic slugs previously described. Such a rejection of a lightweight slug is shown in Fig. 8. It will be apparent that projection 27 due to retarding action of finger 81 serves to divide the standard weight coins from lightweight slugs.

It is preferable that the width of the gap between magnet 28 and the adjacent edge of finger 81 in its normal position should be somewhat greater than the diameter of a standard nickel, so that lightweight discs which do not move finger 81 appreciably will have sufficient space to fall through to reach reject opening 76. It is also advisable that the gap between tip 27 and the adjacent lower edge of finger 81 should be somewhat greater than the diameter of a standard nickel in order to prevent an occasional rejection of a standard nickel which may not be moving fast enough to pass finger 81 before finger 81 returns into the chute after impact with the coin. With the distance between tip 27 and finger 81 greater than the coin diameter such a coin will still have room to pass below finger 81 and be accepted.

Fig. 2 shows the front face, and Fig. 4 the rear face of the plate 65 which when placed against the front face of middle section 16 forms a quarter runway. A deposited quarter after leaving the coin gauge 12 (Fig. 5) enters the runway at the point 90 and after passing along bottom wall 91 encounters a star wheel washer rejector 92 of the same type as rejectors 20 and 38. The washer rejector 92 will not permit a genuine quarter to pass through it and hence the quarter will drop onto the bottom wall 93, pass the under-diameter reject opening 66, pass along curved end wall 94 and strike a lightweight coin rejector 95 which will be knocked out of the runway by the quarter to permit the quarter to strike a spiral gong 96 and continue through the final runway portion 97 into the coin hopper 14 of Fig. 5.

The pivoted lightweight slug rejector 95 for the quarter runway is of a construction similar to

that described for the nickel runway except that it is somewhat heavier so as to distinguish properly between the weight of a legitimate quarter and a slug which is substantially lighter in weight. A lightweight slug will be slowed up enough by the finger 95 to cause the slug to drop to the right of the upper end of dividing wall 98 and hence will be ejected through opening 99 without striking the signaling device 96. The finger 95 projects more than completely across the quarter runway and partially enters a groove or slot in center section 16, substantially in the manner previously described for the corresponding member in the nickel channel.

Fig. 9 discloses an alternative form of the swinging member of Figs. 6 to 8 for rejecting lightweight coins or slugs as applied to the quarter runway of Fig. 4. Pivoted on a substantially horizontal axis at the point 110 and external to the quarter runway section 111 (corresponding to section 65 of Fig. 4) is a swinging member 112 having a right-angle tab 113 which enters the quarter runway through a slot 114 and projects completely across the runway to occupy substantially the same position as the coin impact portion of the rejecting member 95 of Fig. 4. When arm 113 is struck by a legitimate coin it is knocked out of the way and the coin proceeds down the acceptance chute between walls 115 and 116 but it will be obvious that a lightweight coin will be retarded sufficiently to cause its rejection through the reject opening 117.

It will, of course, be obvious that, if desired, a lightweight coin rejector similar to rejector 26 may be incorporated in the dime runway.

What is claimed is:

1. In a coin operated device, a longitudinally inclined coin chute having opposed side walls and a bottom wall down which a deposited coin rolls on its edge, said bottom wall having an aperture sufficient to receive a coin of standard dimensions and a pivoted member having an arm extending completely across said chute above said aperture whereby coins of less than predetermined weight will be deflected into said aperture, the coin contacting portion of said arm normally lying in a

plane substantially at right angles to one of said side walls.

2. In a coin operated device, a longitudinally inclined coin chute having opposed side walls and a bottom wall down which a deposited coin rolls on its edge, said bottom wall having an aperture greater than the diameter of the standard coin, and means whereby coins of less than a predetermined weight will be deflected into said aperture, said means comprising a pivoted member having an arm extending transversely and completely across said chute, the distance between the coin contacting portion of said arm and the initial portion of said bottom wall subsequent to said aperture being greater than the diameter of a standard coin.

3. In a coin operated device, a longitudinally inclined coin chute having opposed side walls and a bottom wall down which a deposited coin rolls on its edge, said bottom wall having an aperture greater than the diameter of a standard coin, one of said side walls having an elongated slot and means whereby coins of less than a predetermined weight will be deflected into said aperture, said means comprising a pivoted member pivoted externally of said chute and having an arm biased to project transversely through said slot completely across said chute above said aperture, the surface of said arm in the direction of coin approach being substantially at right angles to one of said side walls.

4. In a coin operated device, a longitudinally inclined coin chute having opposed side walls and a bottom wall down which a deposited coin rolls on its edge, said bottom wall having an aperture greater than the diameter of a standard coin and a pivoted member having an arm extending transversely across said chute above said aperture whereby coins of less than a predetermined weight will be deflected into said aperture, said member being pivoted externally of said chute and the pivoting axis of said member with respect to the direction of coin travel being located forwardly of the coin contacting portion of said arm.

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